

CLAIMS

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A pneumatic tire comprising
a tread portion,
a pair of sidewall portions,
a pair of bead portions each with a bead core therein,
a carcass ply of cords extending between the bead portions
through the tread portion and sidewall portions and turned up
around the bead core in each bead portion from the axially inside
to the outside of the tire to form a pair of turnup portions and a
main portion therebetween,

a radially outwardly tapering rubber bead apex disposed
between each of the turnup portions and the main portion,

each of the turnup portions extending radially outwardly
beyond a radially outer end of the bead apex to form an adjoining
part in which carcass cords in the turnup portion adjoin carcass
cords in the main portion,

in a meridian section of the tire, the sidewall portion
and bead portion on each side of the tire having a profile
comprising a first linear portion and a second linear portion each
being substantially straight,

said first linear portion extending radially outwards from
a point P in substantially parallel to the tire equatorial plane,

said second linear portion extending radially inwards from
said point P while inclining axially inwards at an angle of from
+15 to +60 degrees with respect to the tire equatorial plane,

a radially outer end of each of the turnup portions being
disposed at a radial distance from a point Q which radial distance
is in a range of less than 3 times a distance (gt) wherein
the distance (gt) is defined as measured from said point P to the

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carcass ply main portion along a straight line drawn from the point P perpendicularly to the carcass ply main portion, and the point Q is defined as a point at which said straight line intersects the carcass ply main portion.

2. The pneumatic tire according to claim 1, wherein when the tire is mounted on a standard wheel rim and inflated to a standard pressure but loaded with no tire load, the point P is positioned at a height in a range of from 0.15 to 0.4 times the section height H of the tire, each from a bead base line.

a 3. The pneumatic tire according to claim 1 ~~or 2~~, wherein the length of the first linear portion is in a range of from 0.05 to 0.4 times the tire section height H, and the length of the second linear portion is in a range of from 0.05 to 0.5 times the tire section height H.

4. The pneumatic tire according to claim 1, wherein said profile comprises a third linear portion extending substantially straight from the radially inner end of the second linear portion to the vicinity of a bead heel in substantially parallel to the tire equatorial plane.

5. The pneumatic tire according to claim 1, wherein in said adjoining part, the distance (t) between the carcass cords of the turnup portion and the carcass cords in the main portion is in a range of from 0.15 to 7.0 times the diameter D of the carcass cords, and the distance (t) is substantially constant in said

adjoining part.

6. The pneumatic tire according to claim 1, wherein in said adjoining part, the distance (t) between the carcass cords of the turnup portion and the carcass cords in the main portion is in a range of from 0.15 to 7.0 times the diameter D of the carcass cords, and the distance (t) gradually increases towards the radially outer end of the adjoining part.

Sub C2 7. The pneumatic tire according to claim 5 ~~or 6~~; wherein a radial height (ha) of the radially outer end of the bead apex is in a range of from 6 to 31 % of the tire section height H.

8. The pneumatic tire according to claim 1, wherein when the tire is mounted on a standard wheel rim and inflated to a standard pressure but loaded with no tire load, said first linear portion and said second linear portion are slightly curved concavely.

Sub B2 9. A pneumatic tire comprising a tread portion, a pair of sidewall portions, a pair of bead portions each with a bead core therein, a carcass ply of cords extending between the bead portions through the tread portion and sidewall portions and turned up around the bead core in each bead portion from the axially inside to the outside of the tire to form a pair of turnup portions and a main portion therebetween, a radially outwardly tapering rubber bead apex disposed

between each of the turnup portions and the main portion,
each of the turnup portions extending radially outwardly
beyond a radially outer end of the bead apex to form an adjoining
part in which carcass cords in the turnup portion adjoin carcass
cords in the main portion,

in a meridian section of the tire, the sidewall portion
and bead portion on each side of the tire having a profile
comprising a first linear portion, a second linear portion and a
third linear portion each being substantially straight,

said first linear portion extending radially outwards from
a point P,

said second linear portion extending radially inwards from
said point P while inclining axially inwards,

said third linear portion extending from the radially
inner end of the second linear portion to the vicinity of a bead
heel,

said first linear portion and said third linear portion
being in substantially parallel with each other,

an intersecting an angle of said first linear portion and
said second linear portion at the point P being in a range of from
15 to 60 degrees,

a radially outer end of each of the turnup portions being
disposed at a radial distance from a point Q which radial distance
is in a range of less than 3 times a distance (gt) wherein
the distance (gt) is defined as measured from said point P to the
carcass ply main portion along a straight line drawn from the
point P perpendicularly to the carcass ply main portion, and
the point Q is defined as a point at which said straight line
intersects the carcass ply main portion.

10. The pneumatic tire according to claim 9, wherein when the tire is mounted on a standard wheel rim and inflated to a standard pressure but loaded with no tire load, the point P is positioned at a height in a range of from 0.15 to 0.4 times the section height H of the tire, each from a bead base line.

11. The pneumatic tire according to claim 10, wherein the length of the first linear portion is in a range of from 0.05 to 0.4 times the tire section height H, and the length of the second linear portion is in a range of from 0.05 to 0.5 times the tire section height H.

add a'
add B³
add D³